

ISSUES AND APPROACHES IN MAPPING THE IMPACTS OF MINING ON THE ENVIRONMENT IN AFRICA (WITH TEST CASE FROM KITWE MINE, ZAMBIA)

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Abstract

Primary industries such as mining and agriculture form the backbone of developing economies throughout much of the world. In this regard, countries in Africa are no exception. From the colonial period until the present, these countries have relied heavily on the utilization of natural resources. As a result, a century of such production driven, environmentally insensitive policies has led to massive soil degradation and contamination, toxic vegetation, groundwater (surface and subsurface) pollution, mine dump disposal and landscape defacement around the mining areas.

The mine areas are not only the most densely populated part of the country but also the most urbanized. Urban centers developed along with the mines as their nuclei and hence they pose spatial problems. The conflict for land between the needs of a growing urban population and the requirements of the mining industry is already sharpening that it needs an urgent and swift response before it erodes and becomes a destabilizing factor to many of this countries. This paper first analyses the mining activities and impacts often visible in many African countries and the challenges awaiting the African scientists in making such problem(s) visible in the decision making. A systematic and multi-disciplinary approach of mapping, monitoring and controlling the impact caused by the mining activities is advised. In most of the African countries (with a long history of mining or in process) however, the original baseline data or current environmental status concerning this activity is unknown or missing. As a start therefore, it is challenging to define the areas in which the problem arises.

Priority in this direction, will be the delineation of the exact location of the mine works, waste tips and land cover changes. This can be achieved using remotely sensed data. The Kitwe mining area in Zambia, assessed using such data, fully justifies these expectations.